217 Randomized double-blind monocentric trial on tolerability, acceptability and efficacy of two formulations of inhaled 7% hypertonic saline with and without hyaluronic acid in reducing airways inflammation in patients with cystic fibrosis – Preliminary results

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Objectives: To evaluate tolerability and efficacy of one month-inhaled 7% hypertonic saline with and without 0.1% sodium hyaluronate in CF patients.
Methods: 26 patients in clinical stable condition have been enrolled in two groups (7% hypertonic saline vs. 7% hypertonic saline+0.1% sodium hyaluronate – Hyaneb®). Mean age was 15.7 yrs (range 8–35, sd 6.8) and FEV1 89.5% pred. (range 46.9–117.4 sd 19.7). All patients have been randomized to two different treatment groups.
Results: All patients showed a positive response to bronchodilation with short-acting β2-agonist administered by spacer: FEV1 increased meanly of 5.54% and MMEF25–75 of 6.2%. A mean increase in FEV1 of 3.2% was reported after four weeks treatment but difference between two groups was not statistically significative ($p = 0.06$). FVC did show the same increase of 3.2% without significance ($p = 0.092$). Total pulmonary resistances decreased of 16.9% ($p = 0.46$) and RV decreased of 22.55% ($p < 0.05$). TLC showed a statistically significative increased of 4.2% ($p < 0.02$). VAS indicated and average degree of satisfaction of 5.73 after the first administration. The adherence questionnaire showed that main reasons for not taking prescribed aerosol were lack of time in the morning (36%), fatigue in the evening (28%) and duration of aerosol administration (20%).
Conclusion: Preliminary data show a positive trend in improved mucociliary clearance and reduced total airways resistances and RV by administration of inhaled 7% hypertonic saline with or without hyaluronic acid. Hypertonic solution shows a good efficacy in reducing airway obstruction and in increasing pulmonary functions parameters in the short-term period.

218 Cystic fibrosis sputum induction trial (*CF-SpIT*). Tolerability data for induced sputum sampling in children with cystic fibrosis

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Background: *CF-SpIT* is a paediatric single-centre comparative study of cough swab, induced sputum, and bronchoscopic lavage for microbiology yield, using both standard laboratory techniques and culture-independent microbiology. We present data on tolerability of the induced sputum procedure in the first 40 children recruited to the study.
Methods: Children aged 6 months to 18 years were recruited at annual review or on hospital admission with chest exacerbation. The induced sputum protocol is standardised, quick and universally applicable. It was performed in all cases by a senior respiratory physiotherapist. Questionnaires were completed by physiotherapist and parent to subjectively assess discomfort from the procedure. Objective measures including heart rate, respiratory rate, and spirometry in older children, were recorded pre- and post-procedure.
Results: 38 patients had induced sputum sampling. Of these, 14 were aged 6 years or less (36%). Secretions were obtained in 25/38 patients (65%). Oropharyngeal suction was used in 12 patients (31%), mostly in younger children. One patient did not tolerate the procedure because of vomiting. Transient side effects were seen in 3 patients (8%). Success in obtaining secretions, subjective assessment of discomfort, and objective measures of tolerability did not differ between younger and older children. 37/38 patients and families were willing to have regular induced sputum sampling in the future, even if secretions had not been successfully obtained on this occasion.
Conclusion: Induced sputum sampling is well tolerated in children of all ages including preschool children, and is acceptable to families as part of routine care.

219 Use of the 'lung flute' for sputum induction in children with cystic fibrosis: A pilot study

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Objectives: To assess the effectiveness of the lung flute in obtaining sputum samples from children with cystic fibrosis (CF) that are not productive of a sample with coughing alone.
Methods: Children attending an outpatient CF clinic with the ability to expectorate sputum but not able to provide a sample with vigorous coughing alone were eligible. Each child was instructed to blow out through the lung flute 2 times followed by a 5 second rest. These 2 breath cycles were repeated 20 times followed by a 5 minute rest and vigorous coughing. The primary outcome was expectoration of a sample with at least one macroscopic sputum plug present. Secondary outcomes were sputum microbiology, time taken to obtain sample, and ease of use of the device as assessed by the patient using a visual analogue scale (VAS), with 0/10 representing very easy and 10/10 very difficult.
Results: 23 children participated (15 males, mean age 12). 17 children used the device on one clinic visit and 6 children used the device on 2 visits. A sputum sample was obtained on 16/29 uses of the device (55%). 15/16 samples yielded a positive culture result for at least one known CF pathogen. Out of the 16 samples, *pseudomonas aeruginosa, staphylococcus aureus, haemophilus influenzae, stenotrophomonas maltophili* and *MRSA* were isolated in 6, 11, 3, 1, and 1 sample respectively. Median time taken to obtain a sample was 10 minutes (range 2–14). Median ease of use on the VAS was 1/10 (range 0–4).
Conclusion: The lung flute appears to be a clinically useful and easy device to use for sputum induction in children with CF. Further research comparing its effectiveness to other sputum induction methods is warranted.

220 Control of sinonasal symptoms improves quality of life

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Objective: Sinonasal pathology can occur in patients with Cystic Fibrosis. This may cause purulent rhinorrhoea, nasal obstruction, head or ear ache, facial pain and sleep disturbance as well as general fatigue. These symptoms may adversely affect quality of life. An audit was conducted to assess the benefit of using DNase via a sinus nebuliser.
Method: 12 patients (4 male and 8 female, age 20–41 years) who reported sinus symptoms at annual review, took part in the audit. All the patients who took part were already using DNase for their lower airways. The rhinosinusitis disability index (RSDI) was completed together with lung function tests, at the beginning and end of a month's treatment. Patients were also asked to comment on any changes to their quality of life. 7 of the patients reported significant improvements to their symptoms as demonstrated by the questionnaire and were keen to continue with the treatment. 5 patients did not complete the trial due to no improvement to their symptoms, being unable to use the nebuliser effectively or being unable to fit the treatment into their daily routine.
Responders reported marked improvement in facial pain, congestion, taste, appetite, breathing and sleep patterns. Benefit was also reported on vocal tone, exercise tolerance, fatigue and concentration.
There was no significant improvement to lung function test results in any of the patients.
Conclusion: DNase administered to the sinuses can provide effective symptomatic relief in some patients who suffer from sinonasal problems. Further study would be helpful in identifying which patients may benefit and when intervention should occur.